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(54) Method for upgrading mobile phone software using communication network

ABSTRACT

The present invention relates to a method for upgrading mobile phone software-a necessary value-added service for mobile phone users-through a wire/wireless network in a simple and convenient manner under no restrictions of time and location, thus providing convenience to users and cost reduction to the manufacturer.

The software upgrade process characteristically requires a cable store an improved program in flash memory and a step to access a server which downloads upgraded software either by selecting a menu or accessing a server to download software through a wire/wireless communication network such as WAP or WEB; and a step to enter the name of the user's modem and the current software version for transmission; and a step to download the latest version for the model for which information was entered through a wire/wireless communication network; and a step to store downloaded file in a separate memory space; and a step to check the integrity of the downloaded file and verify if the user indeed wants to proceed with upgrading if no problem found or to return to the first step for re-downloading if problem found; and a step to indicate the progress of the upgrading process on LCD; and finally a step to output the upgraded content to the screen by rebooting the upgraded mobile phone.

REPRESENTATIVE DRAWING

FIG. 1

DESCRIPTION

BRIEF DESCIPTION OF DRAWINGS

FIG. 1 shows an outline of the configuration of the present invention

FIG. 2 shows a process flow of the present invention

FIG. 3 shows when the battery is fastened the battery separation-protection device according to the present invention

DESCRIPTION OF REFERENCE CHARACTERS FOR MAJOR PARTS OF THE DRAWINGS

10. Mobile phone

20: Server

30: Communication network

40: Battery

50: Battery separation-protection device

DETAILS OF INVENTION

PURPOSE OF INVENTION

FIELD OF THE INVENTION AND CONVENTIONAL PROCESSES

This invention relates to mobile phones, more specifically, a software upgrade method for mobile phones using a communication network for improved convenience for users by enabling a new software upgrade-a necessary value-added service for mobile phone users-through a wire/wireless communication network thus eliminating the need for users to visit the manufacturer's service center for an upgrade.

In the past few years, the overall backbone communication network of Korea including the computer and electronic information communications as well as the Internet has rapidly expanded, thereby announcing the advent of a new age of wireless digital communications or a new paradigm of telecommunications.

In the case of mobile phones, for instance, a variety of value-added services by service providers are being offered to meet a variety of client's demands.

To accommodate such value-added services, performance improvements and upgrades are required accordingly.

Up to now, the user must endure the inconvenience of visiting a location (authorized dealer or service center) at time predetermined by the manufacturer for a software upgrade if the user wishes to use a variety of value-added services offered by the service provider.

Moreover, the manufacturer is required to maintain a chain of authorized dealers to provide such service, let alone the expenses to maintain such a chain.

As a result, such industrial practice has remained the biggest issue for venture capital or medium companies which cannot afford a chain of service centers.

THE TECHNICAL CHALLENGE THE PRESENT INVENTION INTENDS TO OVERCOME

In consideration that most mobile phones that are available on the market today support SMS (System Management Software) or Data Service as well as WAP (Wireless Application Protocol)-a wireless application used as the Internet standard for mobile phones-the present invention is purposed to provide convenience to the users and substantial saving on the expenses associated with said service by offering a simple method for a software upgrade.

The details of the configuration and the effects of the invention are described in detail below with reference to drawings.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention, as illustrated in FIG. 1, characteristically comprises a cable which performs storing the improved program in the flash memory to enable a software upgrade for a mobile phone (10) and a server (20) which downloads the program to upgrade the software in the mobile phone (10) through a wire/wireless communication network (30) which is connected to said server (20).

SMS, OTA, Data Service (e.g., WAP, AEB) can effectively use a wire/wireless communication network (30).

As shown in FIG. 2, the user may select a menu or may take a series of steps of accessing the

server, entering the user's modem name and the current software version, and downloading the latest software appropriate for the entered model name through a wire/wireless communication network.

At this point, a compressed file is downloaded to overcome the transmission speed under a limited bandwidth.

For a stability of the downloaded program, the following steps will be performed: a step to store the downloaded file in a separate memory space, and a step to check the integrity of the downloaded file and verify if the user indeed wants to proceed with upgrading if no problem found or to return to the first step for re-downloading if problem found.

When the user upgrades [the software], the following should be taken into account:

Generally, flash memory writing for a software upgrade consumes substantial power. Moreover, turning the power off during flash memory writing can cause a fatal damage to the device. It is therefore recommended to check the remaining charge of the battery before commencing an upgrade and recharge the battery first as is necessary.

No button will function during an upgrade, and the upgrade progress status will be indicated on the LCD.

As shown in FIG. 3, it is recommended to protect the battery (40) from being accidentally or purposely separated from the mobile phone (10) during an upgrade process by using a battery separation-protection device (50).

Above-mentioned battery separation-protection device (50) includes a securing mechanism on both sides or top and bottom of the battery which is coupled with the mobile phone to protect the battery (40) from being accidentally separated during an upgrade.

After completion of upgrade, the mobile phone (10) will be rebooted to indicate the success of upgrade on the screen before the battery separation-protection device (50) is released.

Furthermore, the upgrade information will be displayed on the screen for the user.

It is recommended not to delete the downloaded file so that the user can use it for another

purpose in the future if he opts to do so.

Meanwhile, if the user encounters a difficulty while using a wire/wireless communication network, he may personally visit an authorized dealer for an upgrade as in the past.

EFFECTS OF THE PRESENT INVENTION

As described above, whenever the user needs to upgrade his product, he may do so by accessing the manufacturer's website or the server to directly download the necessary program, thus eliminating the need for the user to personally visit an authorized dealer for an upgrade. Meantime, the manufacturer will realize a substantial cost saving as it needs not maintain a chain of service centers.

Besides, the present invention has an advantage of applying to a wide array of devices including PDA and wireless modems to access the Internet through a wire/wireless communication network.

Consequently, this invention will not only realize time-saving and expenses by eliminate the need for the user to personally visit a service center for a software upgrade but also will create an outstanding added value to the industry by allowing an upgrade unrestricted by time and location.

(57) SCOPE OF CLAIMS

Claim 1

A method to upgrade mobile phone software, characteristically using a communication network equipped with a cable to store an improved program in flash memory and a server from which to download a software, comprised of a step to either select a menu or access a server from which to download an upgraded software using a wire/wireless communication network such as WAP or WEB; and a step to enter and transmit the user's model name and the current software version; and step to download the latest software appropriate for the entered model name through a wire/wireless communication network; and a step to store the downloaded file in a separate memory space; and a step to display the upgrade progress on an LCD; and finally a step to output the upgraded information to the screen by rebooting the upgraded mobile phone.

Claim 2

The method of Claim 1, wherein a method to upgrade mobile phone software using a communication network comprised of a step to check the remaining battery charge before

proceeding with upgrade, and a step to fasten battery using a battery separation-protection device to prevent if from being separated during the upgrade process.

FIG 1.

1/ Start

2/ Collection of mobile terminal software information

3/ Information analysis and preparation for upgrade

4/ Upgrade request from user

5/ Transmission

6/ No

7/ Check the success of transmission

8/ Yes

9/ End

10/ Start

11/ Receive OTA service provider data

12/ No

13/ Check the success of receipt

14/ Execution of command from OTA service provider data

15/ Transmit performance results to base station

16/ End

FIG. 2

1/ User

2/ Customer Center

3/ Mobil terminal manufacturer's server

4/ User DB

5/ OTA service provider

6/ Mobile terminal

FIG. 3

1/ Start

2/ Collection of mobile terminal software information

3/ Information analysis and upgrade preparation

4/ Upgrade request from user

5/ Transmission

6/ No

7/ Check the success of transmission

8/ Yes

9/ End